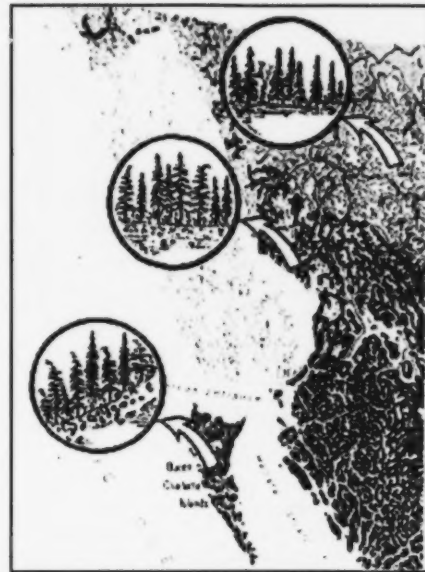


Are British Columbia's New Forests Natural?

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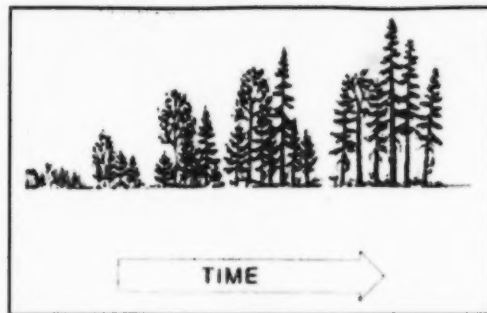
Are current reforestation practices in British Columbia creating natural and healthy forests? Are we converting natural forests into single-species monocultures? These are fair questions. After all, isn't reforestation in British Columbia done simply to grow timber for future harvest? Doesn't it make sense to reforest each site with only one species of tree - the one that can bring the greatest profit? Surprisingly, the answer is no. The first reason is that nature doesn't necessarily play along with anyone's bottom line. In fact, most commercial attempts to create single-species forests in B. C. have failed. The second reason involves the B. C. Forest Service and the Forest Practices Code. Long before forest companies begin logging a site, they must provide detailed plans for its reforestation.



These plans must reflect forest management practices which aim to maintain healthy ecosystems. In other words, trees can only be planted where they could naturally occur. This is required by law.

Natural versus unnatural monocultures (single species forests)

Natural monocultures (i.e., one major species) are common. Anyone who has seen the vast stretches of lodgepole pine in the Cariboo, or mature hemlock forests on the southern coast, can attest to that. Thirty-two per cent of the area harvested in B. C. is monoculture forest. In the 1970s, some forest managers experimented with single-species plantings, in particular high-value, coastal Douglas-fir. Few of the attempts turned out as hoped; in some cases the mortality rate of the fir seedlings was high. These plantations failed because basic principles of forest ecology were ignored. In other words, Douglas fir was the wrong species to grow on those sites. Today, through experience and research, we have a better understanding of forest ecology and how to regenerate forests.



The key to success lies in understanding the environmental requirements of each tree species to reproduce and grow. When single-species plantings are carried out, foresters know and plan for the fact that on average, an equal or greater number of 'naturals' will join the planted seedlings. It's nature's way of restoring balance and diversity.

The biological cycle of forest growth

In nature, when a forest re-establishes itself after a fire or insect infestation, a biological cycle is begun. Over the years the basic stages of this cycle - establishment, young forest, maturity, old growth - are played out according to the special conditions of each site. Take a forest on southern Vancouver Island. In the first few years, western hemlock, Douglas-fir and western redcedar all struggle to establish themselves. At 15 years, Douglas-fir predominates; at 50 years, it shares the site with western hemlock. When the forest reaches the mature phase in another two- to-three hundred years, western redcedar has also taken its place in the forest mix. Some forest ecosystems never reach the final stage of old-growth. More frequently, natural interruptions, such as a fire, insects or wind, begin a new cycle before the old one is complete.



Understanding Nature

Though carried out on a vastly different scale, good forest management has much in common with tending a home garden. Both gardeners and foresters have to know the individual needs of each species they grow (i.e., light, moisture, temperature). They must also understand which plants grow together well (e.g., companion planting). Climate, soil and terrain also play their part in creating unique ecosystems. Just as a home garden may have several distinct areas - a sunny, front yard that is perfect for annuals like



geraniums, or a cooler back yard where rhododendrons thrive - a forest may contain a number of ecosystems. On Vancouver Island, a rocky, exposed ridge is more likely to be populated by hardy species, such as Douglas-fir or lodgepole pine, while western redcedar may take advantage of the shelter and richer soil of a nearby hollow.

With an increased understanding of how nature works, modern forest management is now based on knowledge of, and respect for, individual ecosystems.

Sensitivity to individual ecosystems

B.C.'s geography, soil, and climate are the most diverse in Canada. In the late 1970s the Forest Service created an ecosystem classification system that divides the province into 14 ecological zones ranging from semidesert in the southern interior to coastal rain forest. Within these zones there are more than 600 recognized ecosystems, which have been carefully analyzed. The Ecosystem Classification System provides forest managers with the information they need to properly identify and manage forest ecosystems. For example, the system provides guidelines and standards for harvesting and reforestation that are tailored to the needs of individual ecosystems. By properly identifying an ecosystem and ensuring that the appropriate guidelines for harvesting and reforestation are used, foresters can ensure that treatments are tailored to the individual ecosystem.

The forest management cycle

The huge strides in our knowledge of how forests work have resulted in greatly improved forest management practices. By law, ecological principles provide the foundation for the 'forest management cycle' that work with, rather than against, the natural stages of an ecosystem. Beginning with the harvest, the forest management cycle includes preparing the site for natural regeneration or planting, tending, and if necessary, thinning the new growth. Eventually, the new forest may be harvested again and a new cycle started. In the past, most of the forest management efforts went into the harvest (i.e., logging). Under current law, we now must take a harvest-toharvest outlook.

Along with the right to harvest comes the responsibility for making sure each site is reforested with healthy, seedlings, free from excessive brush competition.



The pre-harvest silviculture prescription



One of the keys to ecosystem-based management in B.C.'s forests is a detailed plan called the silviculture prescription (SP). Timber harvesters must create a SP for each site, describing not only how the site will be harvested, but how it will be reforested. The SP must also describe how the young trees will be protected for their first 10 to 15 years. Other resource values, such as water, wildlife and recreation, must be recognized and accommodated. The SP can be reviewed by the public and must be approved by the local Forest Service district manager before logging can begin. To create an acceptable SP demands a thorough analysis of the site.

The law states that the site must be identified according to its ecological classification, and the resulting SP must "ensure the growth of an ecologically suitable species." In other words, the right species for the right ecosystem.

Monitoring the new forest

The SP and other legal requirements ensure that forest companies monitor and protect reforested sites until the young trees are free of harmful vegetation or brush competition. This is the most delicate stage of the biological cycle, when the new trees must establish themselves. Periodic surveys

must be done to make sure that sufficient numbers of the correct tree species are growing, with adequate size and spacing. If necessary, brush control or other types of tending must be carried out by the forest companies. The Forest Service conducts periodic audits to see that all of these requirements are met. In the end, timber harvesters are released from their legal obligations only when the Forest Service judges the site to be satisfactorily reforested with healthy free-growing trees.



Is tree species diversity at a risk?

Forest management practices continue to be refined as research advances. In contrast to the high levels of seedling mortality during the 1970s, planting now achieves average success rates of well over 85 per cent. Many of these are multispecies plantings. In fact, 19 different tree species are planted throughout the province. When sites are planted with seedlings of only one species, it is done with the knowledge that natural seeding will complement the planted trees. Where suitable, other sites may be left to regenerate naturally. Whatever species of tree is regenerated, the goal is always to maintain a healthy ecosystem. It's the law - both nature's and that of the Forest Practices Code.



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